

In the Claims:

The following listing replaces all prior listing of claims in the application.

Listing of Claims:

Cancel claims 1-14.

Add new claims 15-38

15. (New) A method for electroplating comprising:

applying an electrically conductive base layer to a substrate;

applying an auxiliary layer having a better electrical conductivity in comparison with the base layer after applying the base layer;

applying a mask layer after applying the auxiliary layer;

producing a mask with at least one mask opening from the mask layer;

patterning the auxiliary layer using the mask, wherein the base layer is not patterned or not completely patterned according to the mask; and

electroplating at least one layer in the mask opening after the patterning of the auxiliary layer.

16. (New) The method as claimed in claim 15, further comprising:

electroplating with a current density in an initial phase; and

electroplating with a higher current density in comparison with the current density during the initial phase in a main phase following the initial phase.

17. (New) The method as claimed in claim 16, wherein the current density in the initial phase has a value of less than 50 percent of the current density in the main phase, and wherein the initial phase is longer than 5 seconds and shorter than 5 minutes, and wherein the current density in the main phase is greater than 0.2 ampere per square decimeter and less than 10 amperes per square decimeter.

18. (New) The method as claimed in claim 17, further comprising:

applying an insulating layer prior to applying the base layer,

patterning the insulating layer by producing a contact opening prior to the application of the base layer; and

applying a part of the base layer in the contact opening.

19. (New) The method as claimed in claim 18, wherein applying the base layer comprises applying a barrier layer against copper diffusion, and wherein applying the auxiliary layer comprises applying a layer comprising copper.

20. (New) The method as claimed in claim 19, further comprising:
electroplating a base layer; and
electroplating a covering layer after the electroplating of the base layer, and wherein the base layer comprises a different material from the covering layer.

21. (New) The method as claimed in claim 20, wherein the base layer has a melting point of greater than 500 degrees Celsius, and wherein the material of the covering layer has a melting point of less than 400 degrees Celsius.

22. (New) The method as claimed in claim 21, wherein patterning of the auxiliary layer comprises galvanic patterning of the auxiliary layer.

23. (New) A contact projection arrangement comprising:
at least one of an electrically conductive interconnect or a connection plate;
an electrically conductive base layer;
a copper-free base layer adjoining the basic layer, wherein the copper-free base layer comprises a material having a melting point of greater than 500 degrees Celsius; and
an electrically conductive solder material layer having a melting point of less than 400 degrees Celsius.

24. (New) The contact projection arrangement as claimed in claim 23, wherein the base layer comprises at least one of nickel or nickel-phosphorus, or at least 60 atomic percent of nickel.

25. (New) The contact projection arrangement as claimed in claim 23, further comprising a boundary layer of binary or multiphase compounds, and wherein the boundary layer is present at the boundary between the base layer and the solder material layer.

26. (New) The contact projection arrangement as claimed in claim 23, wherein at least one of the interconnect or the connection plate contains at least 80 atomic percent of aluminum, or wherein at least one of the interconnect or the connection plate contains more than 50 atomic percent of copper, and wherein the solder material layer includes a tin alloy,

and wherein the basic layer comprises a diffusion barrier for copper,

and wherein the basic layer comprises titanium-tungsten, wherein the proportion of titanium is less than 20 atomic percent,

and wherein the basic layer comprises a layer stack made of a plurality of component layers, the layer stack containing at least one of the following layers: a titanium layer, a tantalum layer, a titanium nitride layer, a tantalum nitride layer, a tungsten layer, a titanium-tungsten layer or a titanium tungsten nitride layer.

27. (New) The contact projection arrangement as claimed in claim 23, wherein the basic layer adjoins the interconnect or the connection plate, and wherein the base layer adjoins the solder material layer.

28. (New) The contact projection arrangement as claimed in claim 23, further comprising an electrically insulating layer with a cutout in which at least part of the basic layer and part of the base layer are arranged.

29. (New) The method as claimed in claim 16, wherein the initial phase is longer than 5 seconds or shorter than 5 minutes.

30. (New) The method as claimed in claim 16, wherein the current density in the initial phase has a value of less than 50 percent of the current density in the main phase, and wherein the initial phase is at least one of longer than 5 seconds and shorter than 5 minutes, and wherein the current density in the main phase is at least one of greater than 0.2 ampere per square decimeter or less than 10 amperes per square decimeter.

31. (New) The method as claimed in claim 22 wherein the galvanic patterning comprises galvanic patterning in the same installation as the electroplating of the layer in the mask opening.

32. (New) The method as claimed in claim 23, wherein the boundary layer comprises a ternary compound.

33. (New) The method as claimed in claim 16, wherein the tin alloy comprises at least one of a tin-silver alloy, a tin-lead alloy, a tin-silver-copper alloy, or a tin-silver-bismuth alloy.

34. (New) The contact projection arrangement as claimed in claim 23, wherein the basic layer adjoins the interconnect or the connection plate, or wherein the base layer adjoins the solder material layer.

35. (New) A semiconductor device comprising:
a substrate;
an electrically conductive base layer applied to the substrate;
an auxiliary layer having a better electrical conductivity in comparison with the base layer after applying the base layer;
a mask layer applied after applying the auxiliary layer;
a mask including at least one mask opening, wherein the at least one mask opening is produced from the mask layer, wherein the auxiliary layer is patterned using the mask, wherein the base layer is not patterned or not completely patterned according to the mask; and
at least one layer in the mask opening, wherein the at least one layer is electroplated after the patterning of the auxiliary layer.

36. (New) The semiconductor device as claimed in claim 35, wherein the at least one layer is electroplated with a current density in an initial phase, and electroplated with a higher current density in comparison with the current density during the initial phase in a main phase following the initial phase.

37. (New) The semiconductor device as claimed in claim 36, wherein the current density in the initial phase has a value of less than 50 percent of the current density in the main phase, and wherein the initial phase is longer than 5 seconds and shorter than 5 minutes, and wherein the current density in the main phase is greater than 0.2 ampere per square decimeter and less than 10 amperes per square decimeter.

38. (New) The semiconductor device as claimed in claim 17, further comprising:

an insulating layer applied prior to applying the base layer,
a contact opening produced by patterning the insulating layer prior to the application of the base layer; and
a part of the base layer, wherein the part of the base layer is applied in the contact opening.